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## THE TENTH-EXPONENT

A METHOD of expressing large or small quantities in modern physical and chemical science is to write the number expressing the quantity as a factor of some power of 10. It is proposed to change this notation and write the exponent of 10 at the upper left-hand side of the factor and call this exponent *The Tenth-Exponent*. The base, 10, is omitted. The following numbers will illustrate this notation:  $1.872A \times 10^3 = {}^3 1.872A$ , number of electrons in any atom,  $A = \text{At. Wt.}$

$1.49 \times 10^{-17} = {}^{-17} 1.49$  ergs, average kinetic energy of the electrons in the H atom at  $0^\circ \text{C.}$

$3.4 \times 10^{10} = {}^{10} 3.4$  cm./sec., *mean square* of the velocity of the electrons in the H atom at  $0^\circ \text{C.}$

$4.0 \times 10^{13} = {}^{13} 4.0$  cm./sec., *mean square* of the velocity of the electrons in the H atom at  $3000^\circ \text{C.}$

$v/(6.062 \times 10^{23}) = v/{}^{23} 6.062$  cm.,<sup>3</sup> the volume required by any atom,

$$v = A/D; D = \text{density.}$$

$6.062/v \times 10^{23} = {}^{23} 6.062/v$  number of atoms of any element per cm.<sup>3</sup>

FRANK W. BALL

## CHEMICAL PUBLICATIONS

TO THE EDITOR OF SCIENCE: On page 169 of the current volume of SCIENCE (February 16, 1917), I note that the table gives in 1914-15, 29 publications on chemistry from Columbia University, and 6 under Columbia University and Roosevelt Hospital. The work of these six papers was all done in this department, and should therefore have been included in the table. This would change the number on page 170 for Columbia University from 29 to 35, and would place this department, as regards the number of articles, eighth on the list instead of tenth. It should be noted also that this table refers only to publications in American journals. A number of papers were published in foreign journals from this department during the same year.

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## QUOTATIONS

## SCIENTIFIC AND CLASSICAL EDUCATION

IF scientific men who have not had the time to follow up this educational controversy closely wish to grasp its essential values, they can not do better than weigh over the implications of this passage that follows, from an article by Lord Bryce in the current *Fortnightly Review*:

I do not contend that the study of the ancients is to be imposed on all, or even on the bulk, of those who remain at school till eighteen, or on most of those who enter a university. It is generally admitted that at the universities the present system can not be maintained. Even of those who enter Oxford or Cambridge, many have not the capacity or the taste to make it worth while for them to devote much time there to Greek and Latin. The real practical problem for all our universities is this: How are we to find means by which the study, while dropped for those who will never make much of it, may be retained, and for ever securely maintained, for that percentage of our youth, be it 20 or 30 per cent. or be it more, who will draw sufficient mental nourishment and stimulus from the study to make it an effective factor in their intellectual growth and an unceasing spring of enjoyment through the rest of life? This part of our youth has an importance for the nation not to be measured by its numbers. It is on the best minds that the strength of a nation depends, and more than half of these will find their proper province in letters and history. It is by the best minds that nations win and retain leadership. No pains can be too great that are spent on developing such minds to the finest point of efficiency.

We shall effect a saving if we drop that study of the ancient languages in the case of those who, after a trial, show no aptitude for them.

Let the scientific man read that over carefully, and, if need be, re-read it. Let him note first the invincible conceit of the classical scholar in the superiority of his particular education to any other, and his firm determination to secure the pick of the available boys and the pick of the administrative posts for the classical training. Science and research are to have those rejected as unfit in this sublime progress of the elect. Instead of our boys—I mean the boys destined for real philosophy, living literatures, science, and the study of actual social and political questions—having a straightforward, well-planned